DOCUMENT RESUME

ED 284 841 SP 029 040

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TITLE Preservice and Experienced Teachers' Ability To Diagnose Students' Learning Styles.
PUB DATE 87
NOTE 12p.; Paper presented at the National Convention of the American Alliance for Health, Physical Education, Recreation and Dance (Las Vegas, NV, April 13-17, 1987).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Cognitive Style; Comparative Analysis; *Cooperating Teachers; Higher Education; Learning Strategies; Physical Education Teachers; Preservice Teacher Education; *Prognostic Tests; Secondary Education; *Student Characteristics; *Student Teachers; *Teacher Effectiveness; Teaching Experience

ABSTRACT

This study examined experienced and preservice teachers' abilities to diagnose student learning style preferences. The subjects were 15 pairs of physical education cooperating teachers and their student teachers and 5 randomly selected students from each school site. To determine student learning styles, students completed the Canfield Learning Styles Inventory (LSI) and corresponding teachers and student teachers completed the Canfield Learning Styles Profile Assessment for each of their five students. The relationship between preservice/experienced teachers' perceived scores and the students' actual learning style scores was analyzed by the Pearson-Product Moment Correlation technique. Results indicated that a wide variety of learning styles existed among the students and that neither experienced nor preservice teachers could accurately diagnose their students' learning styles. It is concluded that, if teachers are going to make informed decisions about the teaching process, they need to know the learning styles of their students. Information about learning styles should be included in the teacher education curriculum. A brief description of the LSI categories and scales is included. (Author/CB)

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ED284841

Preservice and Experienced Teachers' Ability To Diagnose Students' Learning Styles

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Abstract

One key to effective teaching is the ability to identify and understand the different ways students process information and acquire skills. The purpose of the this study was to examine experienced and preservice teacher's ability to diagnose student learning style preferences. The subjects were 15 pairs of physical education cooperating teachers and their student teachers; and 5 randomly selected students from each school site. To determine student learning styles, students completed the Canfield Learning Styles Inventory and corresponding teachers and student teachers completed Canfield Learning Styles Profile Assessment on each of their five students. The relationship between preservice/experienced teachers' perceived scores and the students' actual learning style scores was analyzed by the Pearson-Product Moment Correlation technique. The results indicated that a wide variety of learning styles existed among the students and that neither experienced nor preservice teachers could accurately diagnose the learning styles of their students. The implications of this study are twofold. First, if teachers are going to make informed decisions about the teaching process then they need to know the learning styles of their students. Secondly, information about learning styles should be included in the curriculum of professional preparation programs.

Educators are continually seeking new ways to improve instruction, with the underlying objective being increased learning. Understanding how students learn is important to effective teaching. Teachers know that students differ in how they learn, which is not to be confused with what they learn or their ability to learn. Students process information and acquire skills in many different ways. These differences flow from variations in individual intelligence, drive, skills, and accomplishment as well as personal, family, and cultural influences. One key to effective teaching is the ability to identify and understand these differences and to design instruction and materials that accommodate individual learning needs.

One current approach by educational researchers is the area of student learning styles. The learning style theory encompasses the uniqueness of individual differences while focusing on the variety of conditions, modes and environments each individual may prefer. Gregorc (1979) suggests that learning style is a moderating variable that links underlying causes with learning behavior and appears to be both nature and nurture in its roots. Styles reflect genetic coding, personality development, and environmental adaptation. Keefe, (1979) offers a commonly accepted definition of learning styles: "Learning styles are characteristically cognitive, affective, and physiological behaviors that

serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (p. 44).

Most learning styles are bipolar, representing a continuum from one extreme trait to the other. Generally, no greater value is placed on either extreme. It is acceptable, for example, to be a kinesthetic or an audiovisual learner, to require structured or non-structured learning environments. Because this is true, or even encouraged, it is imperative that teachers be cognizant of and empathetic to a variety of learning styles among their students.

It is evident from the studies of Dunn, Dunn, & Price (1977), Marcus (1977), and Calo (1986) that it is nearly impossible for teachers to identify learning style characteristics of any student by observation alone. The three studies indicated that teachers were inaccurate in their perceptions of students' learning styles. The purpose of this study was to examine experienced and preservice teachers' ability to diagnose learning style preferences of randomly selected students.

Method

Subjects

The subjects were 15 experienced middle school, junior, and senior high (grades 5-12) teachers and their student teachers; and 5 students randomly selected from each school site (N=75). All experienced teachers were physical education teachers, all student teachers were

completing the requirement for state certification, and all students were enrolled in physical education.

Procedure

The Canfield (1976) Learning Styles Inventory (LSI) was administered to the selected students to determine each student's individual learning style. The students were not identified to the teachers until after the completion of the five week student teaching experience. At this time each experienced and corresponding student teacher completed a Canfield Learning Style Inventory profile assessment to identify their perceptions of the students' learning styles.

Instrumentation

The LSI measures learning preferences on affective variables, those responsive to attitudes and personality. The inventory consists of 30 items and requires the subject to rank order four options in each item. Scoring is spread across four major categories: Conditions, classroom climate, a network of interpersonal and motivational factors; Content, interest in the subject matter; Mode, a sensory channel of learning; and Expectation, one's prediction of success or failure. Each category contains four or eight related scales. See Figure one. The range of possible scores is from a low of six (indicates a very high preference) to a high of 24 (indicates a very low preference) for each scale. Since the focus of the study was to measure learning

preferences and not to predict learning success, the Expectancy category and its inclusive scales were not used. The LSI has been demonstrated reliable in both test re-test situations and with internal consistency measures. Scale reliabilities as listed in the LSI Manual (1980) range from .86 to .96. Validity Coefficients range from .64 to .95.

Insert Figure One

Data Analysis

The relationship between preservice and experienced teachers' perceived profile scores and the students' actual learning style scores was analyzed by the Pearson Product-Moment Correlation technique, Bolding's (1983) Statistics with Finesse statistical package.

Results

The results of the study indicated that a wide variety of learning styles existed within the 75 students. Scores ranged from 6 - 18 on the Instructor Affiliation scale to 6 - 24 (maximum range possible) on the Goal Setting, Qualitative, Inanimate, Iconics, and Direct Experience scales. Standard Deviations ranged from 2.47 on the Instructor Affiliation scale to 4.31 on the Qualitative scale.

Neither experienced teachers nor preservice teachers could accurately diagnose the learning style of their students. Table 1 shows that Coefficients ranged from

-.22 to +.46 for each of the 16 scales and from .18 to .23 for each of the three major categories.

Insert Table One

Even though preservice and experienced teachers were inaccurate in the diagnosis of students' learning styles their perceptions of the the students' styles were similar, particularly for the scales within the the Conditions category. See Table 1.

Discussion and Summary

The choices and decisions a teacher makes about instruction must be guided by three major considerations: the learning process, knowledge of the learner, and knowledge of the content. While no teacher can force a student to learn or guarantee learning success, teachers have a tremendous power in the manipulation of variables that influence learning. The teacher's behavior, choice of materials, and controlled environment all affect student learning. With this power comes the responsibility to provide individual students with experiences that will allow them to learn to their fullest potential.

Learning styles provide clues for teaching students. Teachers who accept the theory of learning styles recognize that differences in the way students prefer to learn translates into differences in the way students

receive instruction and process information.

Due to the wide range of individual differences in learning styles, preservice teachers should be encouraged and provided experiences to develop an eclectic approach to teaching that may increase the accommodation of learning styles. To faciliate this development, undergraduate preparation of future educators should include guided experiences for recognizing and accommodating student learning styles as well as an introduction to the formal assessment and diagnostic methods available.

The implications of this study are twofold. First, if teachers are going make informed decisions about their lessons, concerning which teaching strategies should be utilized, then teachers need to know the learning styles of their students. Secondly, information about learning styles should be included in the curriculum of physical education professional preparation programs.

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Brief Description of LSI Categories and Scales

I. CONDITIONS - The first eight scores reflect concerns for the dynamics of the situation in which learning occurs.

Peer: Working in student teams; good relations with other students; having student friends.

Organization: Course work logically and clearly organized; meaningful assignments and sequence of activities.

Goal Setting: Setting one's own objectives; using feedback to modify goals or procedures.

Competition: Desiring comparison with others; needing to know how one is doing in relation to others.

Instructor Affiliation: Knowing the instructor personally; liking one another.

Detail: Specific information on assignments.

Independence: Working alone and independently; doing things for oneself.

Authority: Desiring classroom discipline and maintenance of order.

II. CONTENT - Major areas of interest.

Numeric: Working with numbers and logic; computing.

Qualitative: Working with words or language; writing.

Inanimate: Working with things; building, repairing.

People: Working with people, interviewing, counselling.

III. MODE - General modality through which learning is preferred.

Listening: Hearing information, lectures, tapes.

Reading: Examining the written word, reading texts.

Iconic: Viewing illustrations, movies, slides, graphs.

Direct Experience: Handling or performing; field trips.

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Figure 1

TABLE 1
Correlation Coefficients for Experienced and Preservice Teachers' Perceptions of Actual Student Learning Style by Scale

Scales	Coefficient of Experienced Teacher to Student	Coefficient of Preservice Teacher to Student	Coefficient of Experienced Teacher to Preservice Teacher
CONDITIONS	.05	.06	.67
Peer Affiliation	.25	.46	.67
Organization	.02	-.14	.64
Goal Setting	.06	.07	.69
Competition	-.14	-.03	.55
Instructor Affiliation	.05	.005	.46
Detail	-.07	-.14	.59
Independence	.05	.19	.20
Authority	-.14	.09	.48
CONTENT	.16	.13	.43
Numeric	.26	.08	.47
Qualitative	-.03	.06	.40
Inanimate	.14	.07	.30
People	.25	.32	.55
MODE	.01	.03	.46
Lecturing	.28	.17	.54
Reading	.009	.04	.62
Iconics	-.12	.008	.55
Direct Experience	-.22	-.10	.13

n = 15 *
* five scores for each pair of teachers, total of 75 scores